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10/722,796	11/25/2003	Phui Qui Nguyen	FA1216USNA	8238

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WILMINGTON, DE 19805

EXAMINER

TSOY, ELENA

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,796

Applicant(s)

NGUYEN ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/25/03.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of copending Application No. 10/171,206 in view of Wu et al (US 6,039,872). Application '206 teaches current claimed invention except for the use of thermal energy instead of UV radiation. Wu et al teach that the conditions which promote in situ polymerization and/or crosslinking of the acrylate monomers include the application of any conventional energy source for initiating free radical polymerization such as heat, ultraviolet light, gamma radiation, electron beam radiation, or the like (See column 12, lines 24-28). In other words, Wu et al teach that heat is functionally equivalent to ultraviolet light or gamma radiation (high energy radiation) for crosslinking acrylate group containing compounds by initiating free radical polymerization of acrylate groups (See column 12, lines 24-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used any conventional heating in Application '206 instead of high energy radiation with the expectation of providing the desired curing of acryloyl containing binder, since

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Wu et al teach that heat is functionally equivalent to ultraviolet light or gamma radiation (high energy radiation) for crosslinking acrylate group containing compounds by initiating free radical polymerization of acrylate groups.

This is a provisional obviousness-type double patenting rejection.

3. Claims 1-7, 9-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 10/171,207 in view of Wu et al (US 6,039,872) for the same reasons as discussed above.

This is a provisional obviousness-type double patenting rejection.

4. Claims 1-7, 9-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 8-12 of copending Application No. 10/426,601 in view of Wu et al (US 6,039,872) for the same reasons as discussed above.

This is a provisional obviousness-type double patenting rejection.

5. Claims 1-7, 9-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 6-8 of copending Application No. 10/643,598 in view of Wu et al (US 6,039,872) for the same reasons as discussed above.

This is a provisional obviousness-type double patenting rejection.

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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 5-7, 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizutani et al (US 5,780,530) and Wu et al (US 6,039,872).

Mizutani et al disclose a process for multi-layer coating of substrates which comprises the steps of applying a coating layer (See column 14, lines 25-31) directly onto the substrate (See column 14, lines 24-25) or over primer (See column 14, lines 25-31), and baking (curing) the applied coating layer at 140⁰C to 240⁰C (See column 14, lines 17-23). The coating composition may contain coloring pigments depending on intended application (i.e. can be clear) (See column 13, lines 60-61). The coating layer is formed from a coating composition comprising a binder system containing about 97 % of silicone polyol resin (See column 6, line 33) and 3 % of other polyol (See column 6, lines 32-34) such as acrylic polyol having a plurality of alkoxy group-containing pendant groups (See column 3, lines 51-53) with three alkoxy groups attached to the same silicon atom (See column 3, lines 58-59). The coating composition may contain coloring pigments depending on intended application (i.e. may be clear coating composition) (See column 13, lines 60-61). The silicone polyol resin is an organopolysiloxane having at least two hydroxyl groups in the molecule, the unit of which is represented by the general formula: $(R_a)_n (R_b)_m Si(O)_{(4-n-m)/2}$, wherein R_a is C₁-C₂₀-alkoxy or a monovalent C₂-C₂₀₀ organic group containing carbon-carbon unsaturated function in the chain; R_b is a monovalent organic group

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having a terminal hydroxyl group and containing carbon-carbon unsaturated function in the chain; m and n are each a positive real number satisfying the relationship of $0 < n < 4$ (i.e. includes claimed 3 alkoxy groups); $0 < m < 4$ and $2 < n + m < 4$ (See column 5, lines 47-64). It is the Examiner's position that the carbon-carbon unsaturated function includes C=C double bond. Clearly, equivalent weight of carbon-carbon unsaturated functions including C=C double bond in the organopolysiloxane is within claimed range of 200 to 2000 and a content of silicon bound in alkoxysilane groups is also within claimed range of 1 to 10 wt-%.

It is the Examiner's position that the coating comprising alkoxysilyl groups cures upon exposure to air humidity by forming siloxane bridges under the action of moisture.

It is the Examiner's position that baking promotes free-radical polymerization of C=C double bonds since it is well known that the application of *any* conventional energy source such as heat, ultraviolet light, gamma radiation, electron beam radiation initiates free radical polymerization of C=C double bonds, as evidenced by Wu et al (See column 12, lines 24-28).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-7, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al (US 5,780,530) in view of Wu et al (US 6,039,872).

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Mizutani et al are applied for the same reasons as above. Mizutani et al fail to teach: (i) that thermal energy is used instead of UV radiation (Claim 1); (ii) the pigmented coating is applied repeatedly so that the pigmented coating is applied over the applied pigmented coatings (Claims 2, 4).

As to (i), Wu et al are applied for the same reasons as above. It is the Examiner's position that conventional heat includes convection heat.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used any conventional heating in Mizutani et al instead of UV radiation with the expectation of providing the desired curing of the binder, since Wu et al teach that heat is functionally equivalent to ultraviolet light or gamma radiation (high energy radiation) for crosslinking acrylate group containing compounds by initiating free radical polymerization of acrylate groups.

As to (ii), It is well known and conventional in the art that to apply coatings repeatedly to achieve the desired thickness of the coating film.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied a pigmented coating composition in Mizutani et al repeatedly with the expectation of providing the desired thickness of the coating film according to well known technique.

As to claim 10, Mizutani et al teach that the process can be used for coating automobile bodies (See column 1, lines 6-8).

10. Claims 1-6, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaglani (US 5,312,943) in view of Murase (US 4,246,368), further in view of Wu et al (US 6,039,872).

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Gaglanı discloses a process for protective covering over automobile (See column 1, lines 10-12) which comprises the steps of applying clear or pigmented (See column 7, line 62) coating composition comprising 80 % resin oligomer binder (See column 4, lines 61-67) such as binder with urethane linkage (claimed polyurethane) (See column 7, lines 8-42) having both radiation curable olefinic double bonds and condensation curable trialkoxysilane groups (See Formula Ia) and 20 wt % of reactive monomer acrylates (See column 4, lines 61-68; column 8, lines 8-18) including trimethylolpropane tri(meth)acrylate (See column 8, lines 40-41); and curing the coating by UV radiation and by exposure to moisture (See column 9, lines 19-23) thereby providing complete cure of exposed and unexposed (shadow) areas of the coating under conditions of ambient temperature and humidity (See column 4, lines 17-26). The resin oligomer of Formula (Ia) includes oligomer $C_{41}N_4Si_3O_{18}H_{98}$ M.W. 1158) having 2 C=C bonds and 4 silicon atoms. Trimethylolpropane tri(meth)acrylate ($C_2H_5C(CH_2OCO(CH_3)CH=CH_2)_3$ ($C_{18}H_{29}O_6$ M.W. 341) has 3 C=C bonds. Therefore, the coating agent has C=C equivalent weight of the total resin solids content of 374 and Si content of 7.5 wt % (calculation is based on equal parts of both components). Gaglanı teaches that coating thicknesses may range from 0.25 to 5 mils (See column 4, lines 48-49).

Gaglanı fails to teach that: (i) thermal energy is used instead of UV radiation (Claim 1); (ii) the protective covering is formed by at least two coating layers (Claims 1, 2); the protective covering is pigmented and applied over a primer layer (Claim 3).

As to (i), Wu et al are applied for the same reasons as above. It is the Examiner's position that conventional heat includes convection heat.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used any conventional heating in Gaglani instead of UV radiation with the expectation of providing the desired curing of the binder, since Wu et al teach that heat is functionally equivalent to ultraviolet light or gamma radiation (high energy radiation) for crosslinking acrylate group containing compounds by initiating free radical polymerization of acrylate groups.

As to (ii), Murase teaches that when metal, wood, plastics or other substrates are coated for protective purposes with usual coating compositions, it is *more preferable* to apply at least two coating compositions of different properties in a plurality of coats than to repeatedly apply a single composition to the desired thickness (See column 1, lines 21-27). In the former case, the ground coat can be formed from a composition having high adhesion to the particular substrate and other desirable properties such as corrosion resistance (claimed primer), whereas the top coat to be exposed to the atmosphere can be prepared from another composition having, for example, the desired color, gloss, abrasion resistance, photochemical stability, impermeability to chemicals, chemical or physical stability or other properties (See column 1, lines 27-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied clear or pigmented coating composition of Gaglani repeatedly over substrates since Murase teaches that a single composition can be applied repeatedly to substrates to provide the desired thickness of protective coating.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied clear or pigmented coating composition of Gaglani over primed

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substrates with the expectation of providing the desired high adhesion to the particular substrate and other desirable properties, as taught by Murase.

11. Claims 1-6, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maag et al (US 6,333,077) in view of Gaglani (US 5,312,943), further in view of Wu et al (US 6,039,872).

Maag et al discloses a process for multi-layer coating of substrates, which comprises the steps of applying a colored and/or effect base lacquer and a clear lacquer topcoat (See Abstract). The clear lacquer topcoat is formed from a coating composition comprising a binder system of resin solids A) and B), wherein the resin solids content contains 50 to 98 wt. % of a system A) thermally curable by condensation reactions and 2 to 50 wt. % of a system B) which is curable under the action of high-energy radiation such as UV radiation (See column 11, lines 8-13) by free-radical polymerisation of olefinic double bonds, wherein the weight percentages adds up to 100 wt. % and the C=C equivalent weight of the total resin solids content of A) and B) is between 300 and 10000 (See column 4, lines 29-44). The component B) is unsaturated polyurethane or silicone (meth)acrylate having number average molecular weights (Mn) preferably in the range from 200 to 10000, and having on average 2 to 20, preferably 3 to 10 free-radically polymerisable, olefinic double bonds per molecule (See column 8, lines 11-18). The process performed using the known wet-on-wet principle allows the production of base lacquer/clear lacquer two-layer lacquer coatings, in particular on motor vehicles (See column 11, lines 52-57) and may be used not only for automotive original lacquer coating and component lacquer coating but also for automotive repair lacquer coating (See column 11, lines 59-60). The

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clear lacquer coating can be cured by UV radiation (See column 11, lines 8-14) and thermally thereby allowing sufficient curing even for *shaded areas* (See column 11, lines 18-22).

Maag et al fail to teach that the UV-curable polymerizable binder system having a built-in secondary thermally curing mechanism contains a silicone (meth)acrylate component which has urethane linkages and both radiation curable olefinic double bonds and thermally curable condensation groups.

Gaglani teaches that a clear or pigmented (See column 7, line 62) coating composition comprising 20-60% of reactive diluent (solvent for the oligomer) such as vinyl ether monomers, e.g. hydroxybutyl vinyl ether (claimed solvent having water solubility at 20°C of at least 220 g/l) (See column 8, lines 42-55) and 40-80 % of a silicone (meth)acrylate resin oligomer binder (See column 4, lines 61-67) with urethane linkage (claimed polyurethane) (See column 7, lines 8-42) having both radiation curable olefinic double bonds and condensation curable trialkoxysilane groups (See Formula Ia) can be used in UV-curable polymerizable binder system having a built-in secondary moisture curing mechanism (See column 9, lines 20-23) to provide complete cure of exposed and unexposed (shadow) areas of the coating under conditions of humidity (moisture curing) (See Abstract) for the use in protective coverings over automobile (See column 1, lines 11-13). In addition to free-radical polymerisation of olefinic double bonds, with e.g. C=C equivalent weight of the total resin solids content of 579 (See column 10, lines 49-63, Formula (Ia) (C₄₁N₄Si₃O₁₈H₉₈) having M. W. of 1158, Si content of 7.2 wt %).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a coating composition of Gaglani as a clear lacquer coating composition in Maag et al with the expectation of providing the desired cure of exposed areas under UV

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radiation and complete cure of shadow areas under conditions of ambient temperature and humidity, as taught by Gaglani.

Maag et al in view of Gaglani fail to teach that thermal energy is used instead of UV radiation (Claim 1).

Wu et al are applied for the same reasons as above. It is the Examiner's position that conventional heat includes convection heat.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used any conventional heating in Maag et al in view of Gaglani instead of UV radiation with the expectation of providing the desired curing of the binder, since Wu et al teach that heat is functionally equivalent to ultraviolet light or gamma radiation (high energy radiation) for crosslinking acrylate group containing compounds by initiating free radical polymerization of acrylate groups.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gaglani in view of Murase in view of Wu et al or Maag et al in view of Gaglani in view of Wu et al, further in view of Bergstrom et al (US 6,384,125).

Gaglani in view of Murase in view of Wu et al/Maag et al in view of Gaglani in view of Wu et al are applied for the same reasons as above. Gaglani in view of Murase in view of Wu et al/Maag et al in view of Gaglani in view of Wu et al fail to teach that the binder system further comprises hydroxyl groups.

Bergstrom et al teach that hydroxyl groups are functionally equivalent to alkoxy groups for providing moisture curing of coating film at normal or slightly elevated temperatures with or

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without the addition of a crosslinking agent and a condensation catalyst (See column 9, lines 49-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted some alkoxy groups with hydroxyl groups in Gaglani in view of Murase in view of Wu et al/Maag et al in view of Gaglani in view of Wu et al with the expectation of providing the desired moisture curing of coating film at normal temperatures since Bergstrom et al teach that hydroxyl groups are functionally equivalent to alkoxy groups for providing moisture curing of coating film at normal or slightly elevated temperatures with or without the addition of a crosslinking agent and a condensation catalyst.

13. The prior art made of record and not relied upon is considered pertinent to applicant disclosure.

Nesvadba et al (US 6,262,206) teach that *heat or actinic radiation* can be used for free radical polymerization of at least one ethylenically unsaturated monomer to prepare an oligomer, a cooligomer, a polymer or a copolymer (See column 25, lines 10-15).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-141523. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER
ETsoy

June 15, 2005